File No. PWD 78-HUK 69

MYSORE GOVERNMENT SECRETARIAT

Notes/Correspondence/Collection

Department PW Section General irrigation

Subject:— Estimate for Constructing Hiremalli Dam in Badami Tq. Bijapur Dist

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Earlier References:—

Later References:—

Enclosed

(Classification A/B/C)

13/12/64 Yoga
6/1/72

Notes Pages 10
Correspondence pages 46
For/Not for Section note Book
To be destroyed after

Ashamy 21/3/>5
~~Under Secretary to~~
S.O, Government.

May be Perused
BZ 30/4/84
US (UDP)
PLACED (Irrig.)

Sl No 1. Receipt - letter from the CE(N).

The letter from the CE I.P(N) Dharwar is for kind perusal. The file No PWD 210 GUK 69 Containing the letter dated 2.12.69 has been submitted seperately. The CE has forwarded the estimate amounting to Rs 714.74 Lakhs for Construction Almatti Dam for the I.M. Stage portion, for approval of Govt. The estimate submitted is for approval with the Concurrence of F.D.

18/12/69

Sd/-

The previous file on the subject bearing no. PWD II MUK 63 is given to the Special Officer on 15.12.69 (Legal) / This will be obtained from him for processing the case further.

Pl as so.

19/12

y -
20/12

File no PWD II MUK 63 is obtained and put up herewith. It appears that the estimates have been placed before the T.S.C of the MIDC Board and subsequently, proposed to place before the MIDC Board. The decision of these Boards may perhaps be awaited, before the matter is referred to F.D.

29/12/69
29/12

y
29/12

Sl no 2. Receipt letter from the CEI.D(N).

The letter from the CEI.D(N) at Sl nos 1-2 may kindly be perused. The EE has forwarded the estimate amounting to Rs 714.74 Lakhs for the Construction of Atwalli Dam for the Ind Manga portion for approval of Govt. The Technical Sub-Committee of the MIDC Board

and the MIPC Board have recommended approval to these estimates. Vide Item NO 7 of the proceedings at Sl No 2(a). The CE has sought approval to the estimates. Submitted for Consideration and orders with financial Concurrence.

19/8/20.. Detailed estimate on Upper Krishna Project Stage I has already been received and dealt with in file no PWD || MUK 63 (Part II). This may be recorded.

19/8

Note - 2.

Approval to the detailed estimate of UKP. may take some time. Since the works of Dhuratti dam have already been taken up it is necessary that the present estimates as appd by SLPC Board may be appd, so that approval to the estimate will be had and it to keep the entire expenditure under objection.

PD may kindly see the above.

PD)

19/8

Finance Department(W&S.I)

U.O.Note No.FD/4382/W.I/70.

Note-3.

P.W.D. has stated that the approval for the detailed estimate for U.K.P. [illegible] some time and since the works of Almatti Dam has already been taken for erecation.

U.O.Note No.FD 4382/W.I/70. Finance Dept.(W&S.I).

PWD is requested to put up file No.PWD 14 LLM 70. dated.

H.C. Sreenivasa 24/8/70

(H.C.SREENIVASA)
Under Secretary to Government,
Finance Department(W.I)
24/8/70

2937

G.A.I. SECTION

43737

G1

2 CY

PWD)

26/8

Note-4-

The Major Irrigation Sy may please see and make available file No PWD 14 LLM 70.

CY 27/8/70

Major Irrn) 28/8/20

Sri S B S

28/8/20

FD 462/PWD 27/8/70.

The deptt. file PWD 14 LLM 70 is placed below as desired for reference

28/8/20

28/8/20. G Irrn)

The file No PWD 14 LLM 70 is placed below. May be referred to F-D W.r.t. to Note-3 above.

CY 29/8/70.

FD)

31/8

31/8/20

FD 4589 W1

PWD 78 GUK 69

Finance Dept.(W&S.I).

Upper Krishna Project -
Subject:Construction of I Stage of Almatti Dam.
--

F.D. agrees to the proposal.

It is however pointed out to PWD that the economics of the working of this Project do not appear to have been analysed at any stage. Further it is seen realistic estimates are not made giving rise to higher claims during execution. The atchkat estimates for irrigation has in many Projects not realised. The crop pattern not being enforced the losses inevitably attended to these Projects increase. In any case, it is better to have a detailed forecast atleast to enlighten the public about investments on these Projects.

(Approved by J.S) H.C. Sreenivasa 27/2/71
(H.C.Sreenivasa)
Under Secretary,FD(W&S.).

25/2/71

PWD)

SECTION
R.No. 8805
Date 27 FEB 1971
Sign.

PWD (Gl. Estgs).
No 10S2 Date 1.3.71

Sec-CII 27/2

-6-

F.D have agreed to the proposal. The estimate amounts to Rs 214.74 lakhs, for which approval of Cabinet is necessary. Draft Cabinet-Note is put up for final approval.

P.W. Secy., PWD 129 Date 16.3.71

12/3/71

Additional Secy. P.W.D.

Secy. P. W. D

C.M.

4/3

15/3/71

7). may kindly be approved

Chandra 16/3

this may be please be put up to the Secretary after the Governor

[illegible] make alternative arrangements for the

running of the govt.

23.3.71.

PS to CM

Secy PWD

Chand 23/3

20/3

93 (1)

-8-

23/3/71

Fair copy of the Cabinet note may be prepared and then file will be submitted to the Governor.

Chand 23/3

93(1)

-9-

The fair Copy of the Cabinet note is Prepared and placed at page 43 of C/F for perusal and further action.

Additional Secy (P. WD)

30/3/71

Extracts of Notes from 71 to 74 in file No.PWD 11 MUK 63 (Volume-II).

=====

xx xx xx

Note-~~71~~. -10-

The draft submission note kept below may please be seen. Two estimates are pending administrative sanction of Govt. at the moment. One is for - Rs.714.74 lakhs for administrative sanction for the works which have been taken up at the Almatti Dam and for which contracts have already been awarded. The other is for Rs.116.7 crores for the entire - first stage of the Upper Krishna Project which - includes this estimate of Rs.714.74 lakhs. The

M. G. S.	Subject:	File No.

The question is whether to accord administrative sanction at this stage only to the estimate of Rs.714.74 lakhs or whether, pending clearance from the Central Govt., to the entire first stage estimate of Rs.116.7 crores. From the hints dropped by the Tribunal from time to time during the hearings, it would appear that the Krishna Godavari Water Disputes Tribunal may not allot us the quantity of water on which both these estimates are based and therefore a certain amount of infructuous expenditure will have to be incurred if we proceed with the projects on the present proposals. However, as the mind of the Tribunal cannot be positively foreseen at the moment and, as a consequence, as we cannot revise the project on any definite basis, it is necessary to continue the works in progress on the present assumptions, which may result in certain amount of infructuous expenditure if the Tribunal does not award us the quantity of water for which we have planned the projects. The Under Secretary who has been attending the Tribunal feels that the quantum of this infructuous expenditure may not exceed Rs.30 lakhs, until the award of the Tribunal is known. An amount of Rs.30 lakhs for the first stage against an estimate of Rs.116.7 crores and against a further increase of the cost of the project in the likely event of more water than 103 T.M.Cft. for the first stage being granted, will be a very meagre sum. Therefore, we may accord administrative sanction to the estimate of Rs.116.7 crores which includes the amount of Rs.714.74 lakhs, pending clearance from the Central Government so that our case before the Tribunal does not get weakened. Before the submission note is sent to Governor, the case is sent to Finance Secretary for concurrence to accord sanction to the estimate of of Rs.116.7 crores for the whole first stage of the project rather than sanctioning Rs.714.74 lakhs only for the construction of the foundations of the Almatti Dam and its flanks to the ultimate height. Finance Dept. have already agreed to accord sanction to both the estimates for Rs.116.7 crores (vide File No.PWD 11 MUK 63, Note 58-59) and for Rs.714.74 lakhs (vide Note 5 of the File No.PWD 78 GUK 69).

Sd/- (Iftekhar Ahmed)
Addl.Secy.,PWD. 7/4/71.

Secretary,PW&E:

Id/- (M.D.Shivananjappa)
Secy.,PWD. 8/4.

Secretary, F.D:

Note-~~78~~. -11-

F.D. had not given final approval to the proposal, and had suggested that PWD would have to revise the project to keep the expenditure within the limits of the Plan ceiling. Subsequent to this, the Secretary Planning had indicated that all that could be done for the present was to send the project for clearance to the Planning Commission and the CWPC, and to ask them to count the expenditure as part of the approved Plan.

2. Even now FD is not in favour of according administrative sanction to the estimate costing as much as Rs.116.7 crores, which would cover the entire first stage of the project. If it is inevitable to do so, we may utmost give administrative

p.t.o

WD 01050—GPB—8,00,000 13-12-65

approval for the work on the Almatti Dam costing Rs.714.74 lakhs. It would be risky for us to sanction the very - sizeable estimate of Rs.116.7 crores merely in order to secure a favourable treatment from the Tribunal. We would, therefore, stress that the first thing to be done is to get the clearance from the Planning Commission and CWPC and that we should not be in a hurry to give administrative approval on our side in anticipation of the GOI's clearance.

Sd/- (Mani Narayanaswami)
Secretary, F.D.
14-4-1971.

Secretary,PWD:

Id/- (M.D.S)
Secy.,PWD. 15-4-71.

Addl.Secy.,PWD:

Note-~~13~~.12-

Please discuss.

Id/- (Iftekhar Ahmed)
Addl.Secy.,PWD. 16-4-71.

D.S.(I):

Note-~~14~~.13-

Discussed. Submission Note in respect of 714.0 lakhs estimate of Almatti Dam may be put up in the concerned file.

Id/- (M.C)
DS(I). 20-4-71.

Note-14-

Ref notes 10-13 ante. As per orders at-note 13, Submission note to the Governor is put up for kind approval.

21/4/71 ~~DS(I)~~ Additional Secy P.W.D) 21/4/71

21/4

-15-

Iftekhar Ahmed
IFTEKHAR AHMED, 22/4/71
Addl. Secy., PW & E Dept.

-16- Secy PW&E 23/4 -17-

Approved as proposed in note 11
Governor 24/4/71 25/4/71

M. G. S.	Subject:	File No.

From orders prepay.

Secy P.W.D)

Secretary
26.4.71
DS. to Governor

26/4

Addl/Secy)

—18—

27/4/71

DSI (antom)

Section officer concern
to put-up q.o.

—19—

Draft q.o. is put-up for approval.
I.D may see the draft before issue.

for approval before issue.

28/4/71

28/4

Addl. Secy
P.W.D

28/4

28/4/71

Issue q.o

Issued on 30/4/71 28/4

Ref note 4 ante. The Major irrigation Section may kindly return their file NO PWD 14 LLM 70 and return this file.

30/6/71. Major Irrigation

Sri GBS
30/6/71

— 21 —

2001 30-6-71

The file NO PWD 14 LLM 70 is retained in Major Section and returned their file as desired in note 20 ante.

1/5/71

1/5/71

GGSen

No further action is called for.

This may be recorded 'B'.

6/1/72

6/1/72

PROCEEDINGS OF THE GOVERNMENT OF MYSORE
(Public Works & Electricity Department)

Subject:- Ist Stage Estimate for constructing Almatti Dam in Bagewadi Taluk, Bijapur District - accords administrative approval for -

ORDER NO.PWD 78 GUK 69 BANGALORE

DATED 30 APRIL 1971

With reference to the correspondence ending with the Chief Engineer, Irrigation (North), Dharwar, letter No.UKP/ALM/52 dated 1.7.1970 on the above subject, administrative approval is accorded to the estimate amounting to Rs.714.74 lakhs (Seven crore forteen lakhs seventy four thousand) for construction of Almatti Dam for the Ist Stage portion.

This order issues with the concurrence of Finance Department vide their Un Official Note No. 4589 WI dated 25.2.1971.

BY ORDER AND IN THE NAME OF
THE PRESIDENT OF INDIA.

(D.P.KAPOOR)
Under Secretary to Government
Public Works & Electricity Department.

Issued
Dated 30/4

To:

The Chief Engineer, Irrigation Project(North)Dharwar, with the estimate.
The Accountant General, Mysore, Bangalore.
The Finance Department (Budget).

mvn/

Draft.

45

Proceedings of the Govt. of Mysore

Subject:- Ist Stage Estimate for constructing Almatti Dam in Bagewadi Taluk, Bijapur District - accords administrative approval for -

ORDER NO.PWD 78 GUK 69, BANGALORE, DATED, 30/4/71

With reference to the correspondence ending with the Chief Engineer, Irrigation (North), Dharwar, letter No.UKP/ALM/52 dated 1-7-1970 on the above subject, administrative approval is accorded to the estimate amounting to Rs.714.74 lakhs (in words) for construction of Almatti Dam for the Ist Stage portion.

Page 34 Cf

This order issues with the concurrence of Finance Department vide their U.O.No.4589 WI dated 25-2-1971.

BY ORDER AND IN THE NAME OF THE PRESIDENT OF INDIA

29/4.

U.S. PWD (IRRIGATION).

To

The C.E. IP. (North), Dharwar, with the estimate.

The A.G. Mysore, Bangalore.

Copy to F.D. (Budget).

CONFIDENTIAL

44

NO.PWD 78 GUK 69

SUBMISSION NOTE.

Subject:- Upper Krishna Project - Ist Stage estimate for constructing an Almatti Dam in Bagewadi - Taluk, Bijapur District - approval to the -

---

1. The Upper Krishna Project (Stage-I) for an utilisation of 103 T.M.Cft. estimated to cost Rs.58.2 crores was sanctioned by the Govt. of India, Planning Commission in their letter No.2(10)63 dated 28-11-1963. - In April 1964, the Union Minister for Irrigation and Power - inspected the project and suggested the shifting of the Narayanapur Dam 4 miles Upstream of Siddapur, where the length of the dam would be smaller and also provide for the bulk of the storage at Almatti Dam itself. Based on these observations of the Union Minister the Project was re-examined and a modified project was forwarded to Govt. of India in 1965. Subsequently, the entire project has been further reviewed and is in progress accordingly.

2. The Upper Krishna Project as now under execution provides for an irrigation of 20.84 lakh acres utilising 442 T.M.Cft. of water. The project provides for the - construction of Barrage at Hippargi Upstream of Almatti, - Storage Reservoir at Almatti, and a barrage at - Narayanapur. In the first stage which is under execution it is proposed to complete the construction of the - Narayanapur Dam, the construction of the Narayanapur Left Bank Canal to irrigate 10.1 lakh acres and the construction of the Almatti Dam upto the river bed. The utilisation is limited to 103 T.M.Cft. as per the original sanctioned scheme. The cost of the first stage of the project has been estimated as Rs.116.67 crores against the original estimated cost of Rs.58.2 crores for the first stage. The modified Upper Kris

p.t.o.

Project has been forwarded to Govt. of India, Central Water and Power Commission for technical clearance.

3. Construction of Almatti upto river bed in the river portion and upto the full height in the flanks has been taken up for execution. Works have been let out. Since the estimate for Upper Krishna Project Stage-I is not yet sanctioned, the Chief Engineer was asked to frame estimates to the extent of works taken up. Accordingly, the Chief Engineer has - submitted an estimate amounting to Rs.714.74 lakhs. for approval of Govt. The estimate was placed before the M.I.P.C. Board for consideration. The M.I.P.C. Board at its Meeting held on 14-3-1970 resolved as under:-

(X) Page 40 CF.

> "The Technical Sub-Committee of the M.I.P.C. Board relating to the North Zone in its Meeting held on 13-3-1970 have recommended approval to these - working estimates of the Almatti Dam. The recommendations of the Sub-Committee were accepted".

(XX) NOTE 51

4. Finance Department have agreed to the proposal.

5. The matter is submitted to the Governor for approval to the Sub-Estimate amounting to Rs.714.74 - lakhs (in words) for construction of works already taken up, Viz., Earth Dam: Non-Spillway and Spillway Cement Masonry Dam for Ch. 0 to 1573 meter of Upper Krishna Project of Almatti Dam.

23/4

Secretary to Govt.,
P.W. & E. Dept.

21/4/71

CONFIDENTIAL.

NO.PWD 78 GUK 69

43

Submission

~~DRAFT CABINET~~ NOTE

Subject:- Upper Krishna Project - Ist Stage estimate for constructing an Almatti Dam in Bagewadi Taluk, Bijapur District - approval to the -

---

The Upper Krishna Project (Stage-I) for an utilisation of 103 T.M.Cft. estimated to cost Rs.58.2 crores was sanctioned by the Government of India, Planning Commission, in their letter No.2(10)63 dated 28-11-1963. In April 1964, the Union Minister for Irrigation and Power inspected the project and suggested the shifting of the Narayanapur Dam 4 miles Upstream of Siddapur, where the length of the dam would be smaller and also provide for the bulk of the storage at Almatti Dam itself. Based on these observations of the Union Minister the project was re-examined and a modified project was forwarded to Government of India in 1965. Subsequently the entire project has been further reviewed and is in progress accordingly.

The Upper Krishna Project as now under execution provides for an irrigation of 20.84 lakh acres utilising 442 T.M.Cft. of water. The project provides for the construction of Barrage at Hippargi Upstream of Almatti, - Storage Reservoir at Almatti, and a barrage at Narayanapur. In the first stage which is under execution, it is proposed to complete the construction of the Narayanapur Dam, the construction of the Narayanapur Left Bank Canal to irrigate 10.1 lakh acres and the construction of the Almatti Dam upto the river bed. The utilisation is limited to 103 T.M.Cft. as per the original sanctioned scheme. The cost of the first stage of the project has been estimated as Rs.116.67 crores

p.t.o.

against the original estimated cost of Rs.58.2 crores for the first stage. The modified Upper Krishna - Project has been forwarded to Government of India, Central Water and Power Commission for technical clearance.

Construction of Almatti upto river bed the river portion and upto the full height in the flanks has been taken up for execution. Works have been let out. Since the estimate for Upper Krishna Project Stage-I is not yet sanctioned, the Chief Engineer was asked to frame estimates to the extent of works taken up. Accordingly, the Chief Engineer has - submitted an estimate amounting to Rs.714.74 lakhs. for approval of Government. The estimate was placed before the M.I.P.C. Board for consideration. The M.I.P.C. Board at its Meeting held on 14-3-1970 x resolved as under:-

> "The Technical Sub-Committee of the M.I.P.C., Board relating to the North Zone in its Meeting held on 13-3-1970 have recommended approval to these - working estimates of the Almatti Dam. The recommendations of the Sub-Committee were accepted".

Finance Department have agreed to the proposal.

The matter is ~~placed before~~ submitted to the ~~Cabinet~~ Governor ~~Ministers~~ for approval to the Sub-Estimate amounting ~~to~~ Rs.714.74 lakhs (in words) for construction of works already taken up, Viz., Earth Dam: Non-Spillway and Spillway Cement Masonry Dam for Ch. 0 to 1573 meter of Upper Krishna Project of Almatti Dam.

Secretary to Govt.,
P.W. & E. Dept.

No.PWD 78 GUK 69 CONFIDENTIAL 42

DRAFT CABINET NOTE

(Upper Krishna Project)

Subject:-/Ist Stage estimate for constructing an Almatti Dam in Bagewadi Taluk, Bijapur District - approval to the -

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The Upper Krishna Project (Stage-I) for an utilisation of 103 T.M.Cft. estimated to cost Rs.58.2 crores was sanctioned by the Govt. of India, Planning Commission, in their letter No.2(10)63 dated 28-11-1963. In April 1964, the Union Minister for Irrigation and Power inspected the project and suggested the shift of the Narayanapur Dam 4 miles Upstream of Siddapur, where the length of the dam would be smaller and also provide for the bulk of the storage at Almatti Dam itself. Based on these observations of the Union Minister the project was reexamined and a modified project was forwarded to Govt. of India in 1965. Subsequently the entire project has been further reviewed and is in progress accordingly.

The Upper Krishna Project as now under execution provides for an irrigation of 20.84 lakh acres utilising 442 T.M.Cft. of water. The project provides for the construction of Barrage at Hippargi Upstream of Almatti,- Storage Reservoir at Almatti and a barrage at Narayanapur. In the first stage which is under execution, it is proposed to complete the construction of the Narayanapur Dam, the construction of the Narayanapur Left Bank Canal to irrigate 10.1 lakh acres and the construction of the Almatti Dam upto the river bed. The utilisation is limited to 103 T.M.Cft. as per the original sanctioned scheme. The cost of the first stage of the project has been estimated as

p. t.o.

Rs.116.67 crores against the original estimated cost of Rs.58.2 crores for the first stage. The modified Upper Krishna Project has been forwarded to Govt. of India, C.W. & P.C. for technical - clearance.

~~The Chief Engineer, Irrigation (North), was requested to forward the revised estimate of the project.~~ Accordingly, the Chief Engineer has submitted an estimate amounting to Rs.714.74 lakhs ~~for the construction of First Stage Almatti Dam (Upper Krishna Project)~~ for approval of Govt. The estimate was placed before the M.I.P.C. Board for consideration. The M.I.P.C. Board at its Meeting held on 14-3-1970 resolved as under:-

> "The Technical Sub-Committee of the M.I.P.C. Board relating to the North Zone in its Meeting held on 13-3-1970 have recommended approval to these - working estimates of the Almatti Dam. The recommendations of the Sub-Committee were accepted".

Finance Dept. have agreed to the proposal.

The matter is placed before the Council of the Ministers for approval to the Sub. estimate amounting to Rs.714.74 lakhs (in words) for construction of works already taken up, viz Earth Dam: Non-Spillway and Spillway Cement Masonry Dam for Ch. o to 1573 meter of Upper Krishna Project of Almatti Dam.

Chand
16/3

Secretary to Govt.,
P.W. & E. Dept.

12/3/71

Construction of Almatti upto river bed and the river portion and upto the full height in the flanks has been taken up for execution. Works have been let out. Since the consent for UKP Stage I is not yet sanctioned, the CE was asked to send estimate for the expenditure to be taken up.

H. N. 2

GOVERNMENT OF MYSORE

R. & I. SECTION
P. W. & Elec. Dept.
No. 30995
Date 4 JUL 1970
Section ...

2253

Spl. Irrign

Tele gram: "CENORTH"
phone Per: 8412
Gen: 8594

From:
THE CHIEF ENGINEER, PWD.,
IRRIGATION (NORTH),
P. B. NO: 23,
DHARWAR-1.

To:

The Secretary to Government,
Public Works and Elec. Department,
Bangalore.

No. UKP/ALM/52 Enclo: Date: 1 JUL 1970

SUB: 1st Stage Estimate for Constructing Almatti-Dam in Bagewadi Taluka Bijapur District.

Ref:- This office No.UKP/ALM of 17-12-1969.

Sir,

The estimate for constructing Almatti Dam for the Ist stage portion amounting to Rs.714.74 lakhs was furnished to the Government under the above reference for according approval to the same.

Moreover the Technical Sub-Committee of M.I.P.C.Board relating to the North Zone, in its meeting held on 13-3-70 have also recommended approval to these estimates. The M.I.P.C.Board have accepted the recommendations of the Sub-Committee as per letter of Govt. No.PWD 14 LLM 70 dated 3-4-70 obntaining the proceedings of M.I.P.C.Board.

But so far no administrative approval of Government is received in this office for the same. It is therefore requested to accord early administrative approval to the estimates.

Yours faithfully,

For Chief Engineer, PWD
Irrigation (North)

VSC. 1/7

1/7 & 1/7/70

Forwarded to General Irigation Section as the papers relates to that Section.

6/7/70

S.O. (S.I.) 6/7/70

S.O.

Gen Irrgn

SLNO 2(a)

40

PROCEEDINGS OF THE THIRTYFOURTH MEETING OF THE MAJOR IRRIGATION PROJECTS CONTROL BOARD HELD ON 14TH MARCH 1970, AT 1.00 P.M. IN THE CHAMBERS OF THE CHIEF MINISTER, GOVT. OF MYSORE.

-:-

Members present:

Sriyuths:

1) Veerendra Patil, Chief Minister, Government of Mysore, Bangalore.	Chairman.
2) D.Parameswarappa, Deputy Minister for Major Irrigation & Electricity.	Vice Chairman
3) A.K.Char, Retired Chief Engineer, Chambal Project, Bangalore.	Member.
4) Prof. N.S.Govinda Rao, Adviser, Central Board of Irrigation & Power Bangalore.	"
5) Iftekhar Ahmed, Secretary, Public Works & Electricity Department, Bangalore.	"
6) Mani Narayanaswamy, Secretary, Finance Department, Bangalore.	"
7) N.Narasimha Rao, Joint Development Commissioner & Secretary, D.H.P.C. Department, Bangalore.	"
8) K.Basanna, Chief Engineer, Irrigation(South), Bangalore.	"
9) S.G.Balekundry, Chief Engineer, Irrigation(North), Dharwar.	"
10) Dr. H.R.Arakere, Director of Agriculture, in Mysore, Bangalore.	"
11) B.C.Angadi, Director, Water Resources Development Organisation, Bangalore.	"
12) P.R.Nagendra Murthy, Deputy Secretary, P.W.D.(Irrigation)	Secretary.

Members Absent:

1) P.M.Mane, Retired Member, Central Water & Power Commission, Bombay.	Member

SUBJECT:No.1:

Confirmation of the proceedings of the 33rd meeting of the M.I.P.C.Board held on 18th December 1969.

" C O N F I R M E D " .

Subject No.2:

Consideration of the tenders received for the construction of a dam from CH 0 to 1573 meters including foundation treatment etc., at Almatti - Upper Krishna Project.

In the 33rd meeting of the Control Board held on 18-12-1969, the Chief Engineer had been directed to conduct further negotiations with all the contractors and to report to Government the

.. 2

result of negotiations conducted.

The Technical Sub Committee ~~xxxxx~~ relating to North Zone in its meeting held on 13-3-1970 have considered the report of the Chief Engineer after conducting negotiations with all the Contractors. The Technical Sub Committee have recommended the acceptance of the tender of Messrs. Shah Construction Company after obtaining from the contractors an undertakin that all his conditions previously putforth along with his tender are withdrawn except for the following items which have been accepted by the Government.

1) Electrical power of 440 volts at required point will be made available by the Department. The consumption charges at bulk supply rates as prescribed by the M.S.E.B. being deducted from the Contrator's bill.

2) De-watering foundation at 85 paise per HP of the capacity of pumps actually used or installed being paid subject to a maximum limit of Rs.3,50,000/-.

3) For the quantity of masonry constructed using rubble stone obtained from the excavated material, the contractor's rate for the items of work would be reduced by 50 paise per cubic meter of masonry.

It was agreed to accept the recommendations of the Technical Sub Committee and direct the Chief Engineer to issue a letter of intent to the contractor, so that he could start the work immediately. It was also agreed that a draft letter of intent to be addressed to the contractor by the Chief Engineer would be furnished by the Secretary, P.W.D. to the Chief Engineer after obtaining approval for the same from the Law Department and the Finance Department.

Subject No.3:

Consideration of the tenders received for the construction of masonry dam for partial height in spill way and non-over flow section across Harangi River.

The proceedings of the meeting of the Technical Sub Committee relating to the South Zone held on 13-3-1970, were considered and the recommendation of the Committee for accepting the lowest tender of Messrs.Balaji Engineering Construction Company was accepted.

.. 3

39

Subject No.4:

Construction of cement mortar masonry in lieu of Surki mortar masonry in Hemavathi Project.

The recommendations of the Technical Sub Committee for South Zone were considered and it was agreed that cement mortar may be used in lieu of surki mortar for the work in progress during the current season and meahwhile an Expert Committee consisting of the members of the Technical Sub Committee of the M.I.P.C. Board relating to the South Zone should examine this matter in full detail and furnish their advice to the M.I.P.C. Board for consideration.

Subject No.5:

Construction of cement mortar masonry for the training walls below the spill way of Kabini dam.

" D E F E R R E D "

Subject No.6:

Construction of the tenders received for the construction of eartnen dam with irrigation sluice across Gundal River in Kollegal Taluk.

The recommendations of the Technical Sub Committee of the M.I.P.C. Board relating to the South Zone were considered. The Sub Committee in its meeting held on 13-3-1970 has recommended for acceptance, the second lowest tender of Messrs. Bangalore Construction Company, which was unconditional. After discussion, it was agreed that the Chief Engineer may negotiate with all the contractors, including the lowest tenderer, who may be ~~xixx~~ asked to state whether he is prepared to withdraw all his conditions. The Chief Engineer should submit proposals to Government on the negotiations so conducted with the Contractors

Subject No.7:

Estimate for construction of earth dam non spill way and spill way cement masonry dam for CH.0 to 1573 meter of Upper Krishna Project Almatti Dam.

...4

The Technical Sub Committee of the M.I.P.C. Board relating to North Zone in its meeting held on 13-3-1970 have recommended approval to these working estimates of the Almatti Dam The recommendations of the Sub Committee were accepted.

Subject No.8:

Provisions for seismic forces in the Hemavathi Dam.

The Technical Sub Committee of the M.I.P.C. Board relating to the South Zone in its meeting held on 13-3-1970 have recommended that the proposals of the Chief Engineer for strengthening the dam for 0.05 g. be accepted. The recommendations of the Technical Sub Committee was approved.

Subject No.9:

Delegation of enhanced powers to the P.W.D.Officers for execution of works departmentally.

" D E F E R R E D "

Subject No.10:

Consideration of the tenders for construction of Devarabilikere pickup project head works with irrigation sluice, in Harihar Taluk, Chitradurg District.

" D E F E R R E D " .

Subject No.11:

Supply and providing crest gates for Kabini Dam.

The Chief Engineer(South) pointed out that it was very necessary to immediately place orders for the manufacture and supply of the crest gates for Kabini dam to enable the storing of water in the Kabini Reservoir within a period of 2 years. It was also pointed out by the Chief Engineer that the tenders of Messrs. Tungabhadra Steel Products received some time back x in this matter which was within 5% of the lowest acceptable tender may be approved by Government. After discussion it was agreed that the tender of

....5

Messrs. Tungabhadra Steel Products for the supply, manufacture and erection of the gates for Kabini dam which was within 5% of the lowest acceptable tender be agreed to.

Subject No.12:
Supply and erection of crest gates for Suvarnavathi dam.

The Chief Engineer,(Irrigation)South pointed out tnat in the case of tenders received for the manufacture and supply and erection of thex gates for Suvarnavathi dam, the tenderers had put a number of conditions for which Government had asked him to negotiate with the contractors. It was pointed out by him that none of the Contractors were agreeable to withdraw their conditions. It was finally agreed that the work may be let-out to Messrs. T.S.P. after negotiation. The Chief Engineer should submit his report in the matter to Government.

Subject No.13:

Venue for next meeting.

It was decided that the next meeting of M.I.P.C. Board be held at Kabini dam site.

30.3.70
(P.R.Nagendra Murthy),
Deputy Secretary to Government, P.W.D.(Irrn
& Ex-Officio Secretary, M.I.P.C.Board.

(No.PWD.14.LLM.70).

svds.

PROCEEDINGS OF THE THIRTYFOURTH MEETING OF THE MAJOR IRRIGATION PROJECTS CONTROL BOARD HELD ON 14TH MARCH 1970, AT 1.00 P.M. IN THE CHAMBERS OF THE CHIEF MINISTER, GOVT. OF MYSORE.

-:-

Members present:

Sriyuths:

1) Veerendra Patil, Chief Minister, Government of Mysore, Bangalore.	Chairman.
2) D. Parameswarappa, Deputy Minister for Major Irrigation & Electricity.	Vice Chairman.
3) A.K. Char, Retired Chief Engineer, Chambal Project, Bangalore.	Member.
4) Prof. N.S. Govinda Rao, Adviser, Central Board of Irrigation & Power Bangalore.	"
5) Iftekhar Ahmed, Secretary, Public Works & Electricity Department, Bangalore.	"
6) Mani Narayanaswamy, Secretary, Finance Department, Bangalore.	"
7) N. Narasimha Rao, Joint Development Commissioner & Secretary, D.M.P.C. Department, Bangalore.	"
8) K. Basanna, Chief Engineer, Irrigation (South), Bangalore.	"
9) S.G. Balekundry, Chief Engineer, Irrigation (North), Dharwar.	"
10) Dr. H.R. Arakere, Director of Agriculture, in Mysore, Bangalore.	"
11) B.C. Angadi, Director, Water Resources Development Organisation, Bangalore.	"
12) P.R. Nagendra Murthy, Deputy Secretary, P.W.D. (Irrigation)	Secretary.

Members Absent:

1) P.M. Mane, Retired Member, Central Water & Power Commission, Bombay.	Member.

SUBJECT No.1:

Confirmation of the proceedings of the 33rd meeting of the M.I.P.C. Board held on 18th December 1969.

" C O N F I R M E D " .

Subject No.2:

Consideration of the tenders received for the construction of a dam from CH 0 to 1573 meters including foundation treatment etc., at Almatti - Upper Krishna Project.

In the 33rd meeting of the Control Board held on 18-12-1969, the Chief Engineer had been directed to conduct further negotiations with all the contractors and to report to Government the

.. 2

result of negotiations conducted.

The Technical Sub Committee relating to North Zone in its meeting held on 13-3-1970 have considered the report of the Chief Engineer after conducting negotiations with all the Contractors. The Technical Sub Committee have recommended the acceptance of the tender of Messrs. Shah Construction Company after obtaining from the contractors an undertakin that all his conditions previously putforth along with his tender are withdrawn except for the following items which have been accepted by the Government.

1) Electrical power of 440 volts at required point will be made available by the Department. The consumption charges at bulk supply rates as prescribed by the A.S.E.B. being deducted from the Contrator's bill.

2) De-watering foundation at 85 paise per HP of the capacity of pumps actually used or installed being paid subject to a maximum limit of Rs 3,50,000/-.

3) For the quantity of masonry constructed using rubble stone obtained from the excavated material, the contractor's rate for the items of work would be reduced by 50 paise per cubic meter of masonry.

It was agreed to accept the recommendations of the Technical Sub Committee and direct the Chief Engineer to issue a letter of intent to the contractor, so that he could start the work immediately. It was also agreed that a draft letter of intent to be addressed to the contractor by the Chief Engineer would be furnished by the Secretary, P.W.D. to the Chief Engineer after obtaining approval for the same from the Law Department and the Finance Department.

Subject No. 3:

Consideration of the tenders received for the construction of masonry dam for partial height in spill way and non-over flow section across Harangi River.

The proceedings of the meeting of the Technical Sub Committee relating to the South Zone held on 13-3-1970, were considered and the recommendation of the Committee for accepting the lowest tender of Messrs. Balaji Engineering Construction Company was accepted.

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Subject No.4:

Construction of cement mortar masonry in lieu of Surki mortar masonry in Hemavathi Project.

The recommendations of the Technical Sub Committee for South Zone were considered and it was agreed that cement mortar may be used in lieu of surki mortar for the work in progress during the current season and meahwhile an Expert Committee consisting of the members of the Technical Sub Committee of the M.I.P.C. Board relating to the South Zone should examine this matter in full detail and furnish their advice to the M.I.P.C. Board for consideration.

Subject No.5:

Construction of cement mortar masonry for the training walls below the spill way of Kabini dam.

" D E F E R R E D "

Subject No.6:

Construction of the tenders received for the construction of earthern dam with irrigation sluice across Gundal River in Kollegal Taluk.

The recommendations of the Technical Sub Committee of the M.I.P.C. Board relating to the South Zone were considered. The Sub Committee in its meeting held on 13-3-1970 has recommended for acceptance, the second lowest tender of Messrs. Bangalore Construction Company, which was unconditional. After discussion, it was agreed that the Chief Engineer may negotiate with all the contractors, including the lowest tenderer, who may be asked to state whether he is prepared to withdraw all his conditions. The Chief Engineer should submit proposals to Government on the negotiations so conducted with the Contractors.

Subject No.7:

Estimate for construction of earth dam non spill way and spill way cement masonry dam for CH.0 to 1573 meter of Upper Krishna Project Almatti Dam.

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The Technical Sub Committee of the M.I.P.C. Board relating to North Zone in its meeting held on 13-3-1970 have recommended approval to these working estimates of the Almatti Dam. The recommendations of the Sub Committee were accepted.

Subject No.8:

Provisions for seismic forces in the Hemavathi Dam.

The Technical Sub Committee of the M.I.P.C. Board relating to the South Zone in its meeting held on 13-3-1970 have recommended that the proposals of the Chief Engineer for strengthening the dam for 0.05 g. be accepted. The recommendations of the Technical Sub Committee was approved.

Subject No.9:

Delegation of enhanced powers to the P.W.D.Officers for execution of works departmentally.

" D E F E R R E D " .

Subject No.10:

Consideration of the tenders for construction of Devarabilikere pickup project head works with irrigation sluice, in Harihar Taluk, Chitradurg District.

" D E F E R R E D " .

Subject No.11:

Supply and providing crest gates for Kabini Dam.

The Chief Engineer(South) pointed out that it was very necessary to immediately place orders for the manufacture and supply of the crest gates for Kabini dam to enable the storing of water in the Kabini Reservoir within a period of 2 years. It was also pointed out by the Chief Engineer that the tenders of Messrs. Tungabhadra Steel Products received some time back x in this matter which was within 5% of the lowest acceptable tender may be approved by Government. After discussion it was agreed that the tender of

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Messrs. Tungabhadra Steel Products for the supply, manufacture and erection of the gates for Kabini dam which was within 5% of the lowest acceptable tender be agreed to.

Subject No. 12:

Supply and erection of crest gates for Suvarnavathi dam.

The Chief Engineer, (Irrigation) South pointed out that in the case of tenders received for the manufacture and supply and erection of the gates for Suvarnavathi dam, the tenderers had put a number of conditions for which Government had asked him to negotiate with the contractors. It was pointed out by him that none of the Contractors were agreeable to withdraw their conditions. It was finally agreed that the work may be let-out to Messrs. T.S.P. after negotiation. The Chief Engineer should submit his report in the matter to Government.

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30.3.70

(P.R. Nagendra Murthy),
Deputy Secretary to Government, P.W.D. (Irrn),
& Ex-Officio Secretary, M.I.P.C. Board.

(No. PWD. 14. LLM. 70).

svds.

-SLN01

34

GOVERNMENT OF MYSORE

Tele gram: CENORTH
phone: Per: 8412
Gen: 8594

Office of the Chief Engineer, PWD.
Irrigation (North),
P.B. No: 23,
DHARWAR - 1.

No: UKP/ALM

Dated: 17 DEC 1969

Encls: Estimates in
10 sets.

To,

The Secretary to Government,
Public Works & Elec. Department,
Bangalore.

SUB: Ist Stage estimate for constructing Almatti Dam in Bagewadi Taluk, Bijapur District.

Ref: This office letter No. UKP/CEN/ALM/59 of 2-12-1969.

PWD (Gl. Irrgn) Dated
No 855/E 17/12/69

Sir,

I write to enclose herewith estimate in 10 sets for constructing Almatti Dam for the Ist Stage portion amounting to Rs. 714.74 lakhs. The report accompanying the estimate clearly shows various provisions made in the estimate. Early approval for the same is requested.

This estimate will also be included in Stage I estimate for Upper Krishna project which is under preparation.

Yours faithfully,

17/12

for Chief Engineer, P.W.D.
Irrigation (North),

17/12/69

U.S(T)
C.E.9 Seen
18/12/69

sfk/17.12

Submitted for kind perusal
by 18/12

for CM
18/12

The draft submission note kept below may please be seen. Two estimates are pending administrative sanction of Government at the moment. One is for Rs.714.74 lakhs for administrative sanction for the works which have been taken up at the Almatti Dam and for which contracts have already been awarded. The other is for Rs.116.7 crores for the entire first stage of the Upper Krishna project which includes this estimate of Rs.714.74 lakhs. The question is whether to accord administrative sanction at this stage only to the estimate of Rs.714.74 lakhs or whether, pending clearance from the Central Government, to the entire first stage estimate of Rs.116.7 crores. The position now is that the Krishna Godavari Water Dispute Tribunal may not allot us the quantity of water on which both these estimates are based and therefore a certain amount of infructuous expenditure will have to be incurred if we proceed with the projects on the present proposals. However, as the mind of the Tribunal cannot be positively foreseen at the moment and as a consequence as we cannot revise the project on any definite basis, it is necessary to continue the works in progress on the present assumptions, which may result in certain amount of infructuous expenditure if the Tribunal does not award us the quantity of water for which we have planned the projects. The Under Secretary who has been attending the Tribunal feels that the quantum of this infructuous expenditure may not exceed Rs.30 lakhs, until the award of the Tribunal is known. An amount of Rs.30 lakhs for the first stage against an estimate of Rs.116.7 crores and against a further increase of the cost of the project in the

x From the hints dropped by the Tribunal from time to time x during the hearings, it would appear that-

likely event of more water than 103 TMCft. for the first stage being granted will be a very meagre sum. Therefore we may accord administrative sanction to the estimate of Rs.116.7 crores which includes the amount of Rs.714.74 lakhs pending clearance from the Central Government wo that our case before the Tribunal does not get weekened. Before the submission note is sent to Governor, the case is sent to Finance Secretary for advice as to whether we may sanction the estimate of Rs.116.7 crores for the whole first stage of the project or whether we may be content with sanctioning of Rs.714.74 lakhs for the construction of the foundations of the Almatti Dam and its flanks to the ultimate height. F.D. have already ~~accorded~~ ~~concurrence~~ to both the estimates of Rs.116.7 crores and Rs.714.74 lakhs vide Note 6 of file No.PWD 78 GUK 69.

(vide file No PWD 11 NLK 63 Note 58-59)

Secretary, F.D.)

DOCKET SHEET

Department: PWD

File No. PWD 78 GWK 69

Section General Irrigation

Volume: —

SUBJECT

1st stage Estimate for Constructing Almatti Dam in Bagewadi Tq. Bijapur District

Number and date 1	To whom sent 2	Instructions 3
2018/20	Addl. Secy., PWD No. 445 Date 22.4	
	Secy. PWD. No 1421 Date 23.4.	Secy. Governor 24.4. AS 27.4.
	G.S. 358/71 Secy PWD.	
	Secy. PWD. 4-71 No [illegible] Date 2	
	D. S. PWD (Irrgn). No F980 Date 27/4	
	Addl. Secy., PWD No. 516 Date 28/4	
	D. S. PWD (Irrgn). No F991 Date 29/4	

R. & I. SECTION

No. [illegible]

Section [illegible]

Secy PWD.

PWD. CM 922 Date 16/3/71

1030 Secy PWD E. 7/3.1

[P T O.

GOVERNMENT OF MYSORE,

Office of the Chief Engineer, Irrigation (N).

DHARWAR.

UPPER-KRISHNA-PROJECT

ABSTRACT ESTIMATE FOR

CONSTRUCTING NARAYANPUR SPILLWAY CONCRETE DAM FOR CH. 48·00 TO 108·00 ACROSS KRISHNA RIVER

Report to accompany the Estimate of Spillway and Non-Spillway of Narayanapur Dam, from Chainage 48 to 108.00.

•••

The Upper Krishna Project envisages the construction of two Dams across Krishna River (1) Almatti Dam near Almatti Village, Bagewadi Taluka. District-Bijapur and (2) Narayanapur Dam near Siddapur Village, Muddebihal Taluka, District Bijapur contemplating to irrigate 19.50 lakh acres in scarcity areas of Bijapur, Gulbarga and Raichur Districts of Mysore State.

According to the modified proposals of the Project, approved by the Government in G.O.No. PWD 11 MIK 63 dated 22-5-1968 it is proposed to complete the First Phase of the Project as below by the year 1975 and to irrigate about 2 lakh acres by the end of IV Five Year Plan.

1. Completing Narayanapur Dam (Upper) in all respects.
2. Constructing Almatti Dam to a partial height upto R.L.1620 in the river bed and R.L.1680 on the flanks.
3. Completing Narayanapur (Upper) Left Bank Canal for irrigating 10.1 lakh acres.

The different section of the dam will be as under:-

1. Earthen Dam on Left Flank from Ch: 4 to Ch: 48.
2. Non-Spillway Masonry Dam from Ch: 48 to Ch: 56.
3. Spillway Concrete Dam from Ch: 56 to 79.9.
4. Non-Spillway Masonry Dam from Ch: 79.9 to Ch: 108.
5. Earthen Dam on Right Flank Ch: 108 to Ch: 168. and from Ch: 168 to Ch: 355.

The Estimates have been prepared as under:-

1. Earthen Dam Left Flank from Ch: 4 to Ch: 48.
2. Earthen Dam Right Flank from Ch: 108 to Ch. 168.
3. Spillway and Non-spillway Dam from Ch: 48 to Ch: 108.

The present estimate deals with Spillway concrete Dam and Non-Spillway masonry Dam totalling from Ch: 48 to Ch: 108.

The various provisions made in the estimate are detailed below:-

NON-SPILLWAY SECTION:- The upstream face is vertical upto R.L.1565 and from there a batter of 1 in 10 is given upto

-foundation level (i.e.,) R.L.1535-00. The down-stream face is vertical upto R.L.1595-and later, it has a batter of 0.45 to 1 upto R.L.1565 and 0.7 to 1 upto foundation level. The bottom width at foundation level of 1535 is 61.50 feet. A drainage gallery of 5' x 7½' has been provided.

SPILLWAY SECTION:- For ogee curve of the spillway the section has been designed ~~& has been~~ and adopted. On upstream face from R.L. 1570.00 to R.L.1541.50 a slope of 1:1 has been provided and from R.L.1541.50 to R.L.1535 (i.e.,) upto foundation level; the upstream face is kept vertical.

The different types of concrete and masonry in the spillway and non-spillway section are as under:-

NON-SPILLWAY DAM TRAINING WALLS & KEY WALLS:

1. Face stone masonry in C.M.1:3 for upstream face.	1'9" thick.
2. Face stone masonry in C.M.1:4 for down stream face.	1'9" thick.
3. Un-coursed Rubble stone masonry in C.M.1:3.	3'3" thick adjacent to upstream (2).
4. Un-coursed Rubble stone masonry in C.M.1:4.	between UCRS masonry in C.M.1:3 and Hammer dressed face stone masonry in C.M.1:4 and rear side of training wall and for key Walls.
5. Cement concrete of strength 3500 P.S.I(M4) with 1½" max.size aggregate.	Drainage gallery.
6. Single line chisel dressed masonry in C.M.1:4.	For the face of training wall.

3 Training walls with top level R.L.1575.00 and top width 5' and 50' length each are provided on the ends of the Spillway bucket and the bucket of sluice flank and the sectio consists of upstream face vertical and down stream face a batter 0.6 to 1, for end training walls and with both sides batter for the central training wall.

Key walls with top level at R.L.1627 for 100 ft. length on either side at junction of earthen Dam and non-spillway

-dam have been provided. The top width of the Key walls is kept as 5' with outside batter of 1 in 10 and is proposed to be constructed in uncoursed rubble stone masonry in C.M.1:4.

SPILLWAY DAM:

Five types of concrete have been provided for the Spillway section of the dam and are as follows:-

1. Concrete of Designation M1.(A6S2000)-Interior of Spillway Dam. Alternatively concrete of Designation M1a (A3S2000) Interior of Spillway Dam. Alternatively
(a) concrete of Designation M1a (A3S2000) —do—
2. Concrete of designation M2(A6 S3000) adjacent to M.1 concrete and below M4 concrete both for the dam sectio and bucket. Alternatively concrete of Designation M2a (A3S3000)adjacent to in Bucket. Alternatively
(a) concrete of Designation M2a (A3S3000) —do—
3. Concrete of designation M3(A3 S3500) for piers.
4. Concrete of designation M4(A1.5 S3500)-For drainage gallery, 2' thick over the spillway and 2' thick over the bucket and for spillway road bridge beams.
5. Concrete of designation M5(A3/4 S3500).

For block out and wearing coat and for spillway road bridge slab.

The quantities of various ingredients for different types of concrete are as under:-

Concrete Designation.		REQUIREMENT IN Kg/Cum Cement.	Sand.	Coarse-agg
1		2	3	4
1.	M1.	155	582	160
Alternatively-	M1a	191	635	144
2.	M2.	210	571	157
Alternatively	M2a.	258	615	139
3.	M3.	310	600	135
4.	M4.	375	641	116
5.	M5.	433	733	97

Foundation Excavation:-

Four bores have been taken on the dam line at cha[illegible] 54,57,64 and 77 and all the bores have given good result. Suitable foundation rock is expected at R.L.1535,the assumed foundation level. For the Non-spillway section from chai[illegible] 48 to 56 and 104 to 108 foundation level of R.L.1540 has been assumed as rock is available at higher levels.

The excavation for foundation has been broadly divide into two classifications as follows:-

Sl.No.	Description.	Reach.	Percentage
1.	Excavation in all kinds of soils upto and including soft rock and removal of boulders upto and including 5 Cft in volume.	Ch: 48 to Ch.56	50%
		Ch: 56 to Ch.79.90	2%
		Ch: 79.9 to Ch: 104	15%
		Ch: 105 to Ch: 108	30%
2.	Excavation in hard rock requiring blasting and removal of boulders more than 5 Cft in volume.	Ch: 48 to Ch. 56	50%
		Ch: 56 to Ch. 79.90	98%
		Ch: 79.9 to Ch: 104	85%
		Ch: 104 to Ch: 108	65%
		Ch: Bucket.	100%

2) Preparation of foundation bed:-

In weak zones of the foundation, if any and in the foundation of bucket, it is proposed to fix 25 mm (1" dia) ribbed steel dowel bars of 10 feet long, driven five feet in hard rock and grouted with cement mortar 1:1. The extent of weak zones in the foundation of dam may require dowel bars, is considered as 10% for the purpose of estimate etc.

3) FOUNDATION TREATMENT:

The following types of grout holes and test holes have been adopted.

a) Curtain grouting of 1.7/8" dia. at 5' C to C along the centre line of Dam and 75' deep.

b) Consolidation grouting of 1-3/8" dia. 30' deep at 25' C to C for the entire foundation area of the Dam.

c) Drainage hole 3" dia. at 30 ft. C to C and 30 feet deep along the drainage gallery.

d) Test hole of NX (3" dia) size by Diamond drilling at 5% of the total Rft. of curtain grout holes.

Flushing the above holes upto thirty minutes with air and water under required pressureand stage grouting with cement slurry, has been provided for the above holes. Since the foundation strata is of granite devoid of large fissure, grout consumption has been assumed as half a bag per Rft. of grout hole for the purposes of estimate. Flushing for more than 30 minutes may become necessary for some of the The extra flushing

-rate of 7.5 minutes and per each stage of about 20' depth.

Consolidation grouting for the area of the bucket of 1-3/8" dia. at 25' C to C and 30 feet deep have also been provided. The entire grouting operation is proposed to be by stage grouting with split spacing. However, provision is made for insertion of packers on a lumpsum basis for grouting of any large fissures or seams.

4) DAM PROPER : SPILLWAY

This is proposed to be constructed of 5 types of Concrete as already described above.

NON SPILLWAY

This is proposed to be constructed with different types of masonry as already described.

The average mortar content is assumed as 35 Cft. for face stone masonry and 45 Cft. for U.C.R.S.masonry For non-spillway dam cement pointing with C.M.1:2 has been provided with water proof compound for upstream face and without water proof compound for downstream face.

5) PIERS

15 feet thick piers as shown in the drawing with cut and case waters and nominal reinforcements have been provided.

6) CREST GATES

Provision has been made for 37 Nos. of radial gates of 50' x 45' and a lumpsum rate of Rs.300/-Sft. has been provided towards the cost of gate and hoisting arrangements etc.,

7) BRIDGE OVER SPILLWAY

An R.C.C. bridge with T.Beams and slabs and parapets has been provided as shown in the drawing.

8) RIVER SLUICE

Eight Nos. of river sluices are provided in the non-spillway dam of size 5'x 8' for diverting the river flow during construction. After the work is completed it is proposed to block 4 Nos. of river sluices with concrete of designation M3. Provision for 4 Nos. of river sluices gates and one for bulk head has also been made in the estimate.

MISCELLANEOUS ITEMS

The following items have also been provided in the estimates.

1. Constraction joints at every 65' both in the spillway, non-spillway dams and for the Drainage Gallery have been provided as shown in the drawing.

2. Providing and handling of puzzolana to the extent of 15% of the cement requirements of concrete and maxonry except that of RCC works.

3. Cooling of aggregates of the mass concrete of concrete spillway including concrete around drainage gallery concrete in piers and spillway bucket etc., but excluding concrete for road bridge.

4. River flow diversion and a fair weather crossing below the dam site.

5. Welding of the bars of more than 3/4" dia.required for the bridge of the spillway.

6. Providing and fixing above the foundation bed, black mild steel pipes of internal dia. 2" in lengths 15 ft are to facilitate the drilling and grouting of foundation after the dam has been built up to sufficient height.

7. Fixing porous concrete blocks of 1'-9" cubes with a Central hole of 8" both for spillway and non-spillway.

8. Lumpsum provisions are also made for ornamental parapets,

-lamp posts river mileage flow diversion, conducting tests for quality control, construction and maintenance of haul roads, air vents and air shafts. installation of equipments for instrumentation, electrification to drainage gallery, pump chamber and adits, drainage below bucket and rough details for the same are enclosed.

RATES

Separate rate analysis for all the items are worked out and adopted. For concrete items, batching, mixing, conveying, placing, vibrating, curing etc., has also been worked out in detail and adopted. The cost of puzzolana together with its handling charges are also worked out. Regarding cooling of aggregates, a provision of Rs.7/- unit of concrete has been made as worked out.

COST

The cost of spillway and non-spillway Dams is as follows:-

1. Non-Spillway Dam	...	Rs. 358.92 lakhs
2. Spillway Dam M1 & M2. Concrete.	...	Rs. 671.46 lakhs
	Total	Rs.1029.68 lakhs
1. Non-Spillway Dam.		Rs. 358.22 lakhs
2. Spillway Dam with M1a & M2a concrete.		Rs. 683.33 lakhs
		Rs.1041.55 lakhs

Estimated cost with M1,M2 concrete Rs. 1029.68 lakhs

-do- with M1a, M2a concrete Rs. 1041.55 lakhs

Sd/-
Superintending Engineer, P.W.D.
U.K.P.Circle, Almatti.

rln/5-3.

CHIEF ENGINEER, P. W. D.
IRRIGATION (NORTH), DHARWAR

Sl.No.	Quantity	Unit	Items.
7.	168	Metric Tonnes	Consolidation grouting with cement slurry i (1.2/8") dia. under pressure as directed an all materials and including dewatering with (1/2 bag per foot)
8.	22,465	Cum	Providing and laying cement concrete of Des of 210 Kgs per Sq.Cm at 28 days with graded (6") and with a cement content of [illegible] Kgs p and conveyance of all materials, form work, curing, dewatering, including all leads and cost of pre-cooling. Alternative
8(a)	22,465	Cu.m	Providing and laying cement concrete of des of 210 Kgs/Sq.cm at 28 days with graded agg and a cement content of 258 Kgs/Cubic Metre conveyance of all materials, & form work, m curing, dewatering, including all leads and cost of pre-cooling.
9.	9,273	Cu.m	Providing and laying cement concrete of Des of 245 Kgs per Sq.cm at 28 days with graded (1½") with a cement content of 375 kgs/Cu.m yance of all materials, form work, mixing, dewatering, with all leads and lifts etc.,
10.	82.80	Metric Tonnes	Providing fabricating and placing in positi including cutting, bending, binding, weldi ty, dewatering, with all leads and lifts et
11.	10,760	Cum/KM	Extra radial load charges for conveying sat beyond the radial limits shown in the resp
	D. MISCELLANEOUS ITEMS.		
1	L.S.		River Diversion.
2.	L.S.		Providing ornemental work to parapet and p
3.	L.S.		Providing Utility Towers.
4.	L.S.		Providing drainage below bucket.
5.	L.S.		Conducting tests by the Department for pur of materials.
6.	L.S		Provision for constructing and maintenance
6(a)	L.S.		-do-
7.	L.S.		Providing air vents and air shafts.
8.	L.S.		Providing and embedding instruments as dir of Dam.
9			Escalation in prices of oil, m.s.
10			Insurance premium charges on equi
9.			Electrification to Drainage Gallery.
10.			fair weather crossing b
11.			Contingencies.
12.			Work-Charged Establishment.

	Rate	Per	Amount.
the above drilled holes of 35 mm including cost and conveyance of ll leads and lifts etc., complete	392.00	Metric Tonne	65,856.00
gnation M-2 with a crushing strength aggregate of maximum size upto 160 mm r Cu.m below the bucket including cost ixing, placing, vibrating, compacting lifts etc., complete but excluding the	105.15	Cu.m	23,62,195.00
gnation M_2 with a crushing strength gate of maximum size upto 80 mm (3") below the bucket including cost and ing, placing, vibrating, compacting, lifts etc., complete but excluding the	115.05		23,84,598.00
gnation M-4 with a crushing strength aggregate of maximum size of 40 mm for the Bucket including cost and conve- lacing, vibrating, compacting, curing, omplete but excluding cost of pre-cooling	158.60	Cu.m	14,70,698.00
n ribbed steel reinforcement for RCC work cost of binding wire of approved quali- ., complete.	1370.00	Metric Tonne	1,12,614.00
aggregates rubble from quarries situated tive quarry maps.	0.27	Cum/km.	2,905/-
	L.S.		7,25,000.00
viding and fixing lamp posts.	L.S.		47800.00
	L.S.		2,00,000.00
	L.S.		1,65,000.00
se of quality control and selection	L.S.		1,00,000.00
f quarry roads and haul roads. Main Roads	L.S.		3,00,000.00
Access Roads	L.S.		1,50,000.00
	L.S.		25,000.00
ted for studying structural behaviour	L.S.		2,00,000.00
. Grease etc	L.S.		1 00 000 00
ents to be used in the works	L.S.		2 00 000 00
	L.S.		6,000.00
w the dam site	L.S.		10,25,000.00
			644,07,893.00
	3%		19,12,037.00
	2%		12,98,068.00
	Grand Total		676,29,998.00

Sl. No.	Quantity.	Unit.	Items.
6.	418.50	Cum	Providing and laying cement concrete of Desi strength of 245 Kgs. per sq. cm. at 28 days maximum size of 20 mm (3/4") and a cement c wearing coat including cost and conveyance o mixing, placing, vibrating, compacting, curi leads and lifts etc., complete but excluding
7.	77,146	Cum	Providing and laying cement concrete of desi strength of 245 Kgs. per sq. cm. at 28 days mm size upto 20 mm (3") and a cement conte spillway piers and splayed walls including c materials, form work, mixing, placing, vibra dewatering, with all leads and lifts etc., c precooling.
8.	135.40	Metric Tonnes.	Providing and fabricating and placing in po (nominal) for the RCC work including, cuttin cost of binding wire of approved quality, de lifts etc. complete.

C. SPILLWAY BUCKET AND BUCKET BELOW RIVER SLUICES.

1.	21931	Cum.	Excavation for foundation of bucket in hard cluding removal of hard rock boulders of siz including shoring, strutting, dewatering an stuff or stacking it neatly as directed with leads of 120 Metres (400') beyond the edge
2.	1462	Cum	Excavation for foundation of bucket by drill to blasting including dewatering with all li or stacking it neatly as directed with all l (400') from the edge of excavation.
3.	9593	Sqm.	Preparing foundation bed for concrete by pr and stepping, for foundation bed of bucket leads and lifts for disposing the stuff as (400') from the edge of excavation.
4.	667	Nos.	Providing and fixing 25 mm (1") dia. ribbed long and driven 1.5 M(5') in hard rock for bucket including drilling holes in hard ro with cement mortar 1:1 including dewatering complete including cost of steel.
5.	2,045	Metres	Drilling consolidation grout holes of 35 m inclined upto 10° to the vertical in rock o stages including dewatering(25' c/c both
6.	2,045	"	Flushing upto a maximum 30 minutes the a of 35 mm (1-3/8") with water and air und including conducting water tests etc. and lifts etc. complete.

	Rate.	Per.	Amount.
nation M.5 with a crushing th graded aggregates of a ntent of 433 Kgs/Cum. for all materials, form work, g, dewatering, with all cost of preccoling.	141-40	Cum	59,176-00
nation M-3 with a crushing ith graded aggregate of a maxi- t of 310 Kgs. per cum. for st and conveyance of all ing, compacting, curing, mplete but excluding cost of	127-20	Cum	98,12,971-00
tion mild steel reinforcement , bending, binding, welding, atering, with all leads and	1270/-	Metric Tonne.	1,91,961-00
rock requiring blasting in- more than 5 Cft. in volume disposing the excavated all lifts and with a maximum f excavation.	16.75	Cum	3,67,344-00
ing wedging without resorting fts for disposing the stuff ifts and with a lead of 120 M	30-30	Cum	44,209-00
per line drilling, benching ncluding dewatering with all irected and a lead of 120 M	4-50	Sq.m.	43,191-00
steel dowel bars 3"(10') he foundation bed of , cutting rods, grouting with all leads and lifts etc.	80-00	Each	53,300-00
1-3/8") dia. vertical or concrete as directed in s).	37-00	Metre	75,665-00
consolidation grout holes required pressure as directed watering with all leads and	17-50		38,788-00

S.No.	Quantity	Unit	Items
28.	6,925	Metric tonnes	Providing and handling puzzolana including i piles, placing in the mixer it along with ot ing in the structure.
29.	1,00,000	Cum	Cooling the concrete including cost of furni performing all works required to pre-cool th 1,00,000 Cum and placed in form.
30.	1,22,326	Cum	Cooling the concrete next to the first 1,00, labour and materials and performing all work placed in form.
V.	DRAINAGE GALLERY:		
31	3,987	Cum	Providing and laying cement concrete of Desi 245 Kgs per Sq.cm. at 28 days with graded ag (1½") and with a cement content of 375 Kgs/C fissures and fault zones in the foundation, materials, form work, mixing, placing, vibra all leads & lifts etc. complete but excludin
32.	92	Metric tonnes	Providing fabricating and placing in positio RCC work including cutting, bending, binding quality, dewatering with all leads and lifts
33.	7,943	Square metres	Radial gates 37 Nos. of 45' x 50' each inclu
B.	SPILLWAY PIERS AND BRIDGE OVER SPILLWAY:		
1.	1,529	Cum	Providing and laying cement concrete of Desi of 245 Kgs per Sq.cm. at 28 days with graded 20 mm (3/4") and with a cement content of 43 cost and conveyance of all materials, form w compacting, curing, dewatering with all lead excluding the cost of pre-cooling.
2.	439	Metric Tonne	Providing fabricating and placing in positio RCC work including cutting, bending, binding quality, dewatering, with all leads and lift
3.	2,101	Joints	Welding the M.S. reinforcement bars and ribb to 32 mm dia. including cost of all materials
4.	1,370	Cum	Providing and laying cement concrete of Desig strength of 245 kgs per Sq.cm. at 28 days wi size of upto 40 mm (1½)" and with a cement co for the slab over the spillway bridge, inclu all materials, form work, mixing, placing, vi dewatering with all leads and lifts etc. com of pre-cooling.
5.	182	Metric Tonnes	Providing fabricating and placing in positio for the RCC work including cutting, bending, wire of approved quality, dewatering, with complete.

	Rate	Per	Amount.
conveyance from Departmental stock ingredients of concrete and plac-	80-80	Metric Tonne	5,64,080-00
ing plant, labour and materials and concrete mix upto the quantity of	7-00	Cum	₹,00,000-00
Cum including cost of furnishing plant required to pre-cool the concrete and	7-00	Cum	8,56,282-00
ation M-4 with a crushing strength of gates of maximum size of upto 40 mm surrounding the drainage gallery, cluding cost and conveyance of all ng, compacting, curing, dewatering with the cost of pre-cooling.	189-10	Cum	7,53,942-00
ribbed steel reinforcement for the cost of binding wire of approved tc. complete.	1370-00	Metric tonne	1,28,040-00
ng hoisting arrangements.	3230-00	Sq.Metres	2,56,47,890-00
ation M5 with a crushing strength ggregates with maximum size upto Kgs/Cum for the beams, including k, mixing, placing, vibrating, nd lifts etc. complete but	208-60	Cum	4,02,127-00
ribbed steel reinforcement for the cost of binding wire of approved tc. complete.	1370-00	Metric Tonne	6,00,060-00
steel reinforcement bars of 18 mm plant and labour etc. complete.	2-75	Joint	5,777-00
ation M-4 with a crushing graded aggregates of maximum tent of 375 Kgs per cum. g cost and conveyance of rating, compacting, curing, te but excluding the cost	255-05	Cum	3,49,419-00
ild steel reinforcement inding, cost of binding leads and lifts etc.	1270-00	Metric Tonne.	2,31,140-00

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S.No.	Quantity.	Unit	Items.
9.	982	Metric Tonnes.	Curtain grouting with cement slurry in th grouting with pressure as directed, inclu dewatering with all leads and lifts etc.,
10.	3,820	Metres	Drilling consolidation grout holes of 35 100 to the vertical in rock or concrete a (20' C/C)
11.	3,880	Metres	Flushing upto a maximum of 30 minutes the (1-3/8") dia. with water and air under re cting water tests etc., and dewatering wi
12.	318	Metric Tonnes	Consolidation grouting with cement slurry under pressure as directed and including cluding dewatering with all leads and lif
13.	1,774	Metres	Providing and fixing black mild steel pip (2") in lengths varying from 3 M (10') to way, including cost and conveyance of all etc., complete including dewatering with
14.	810	Metres	Drilling 80 mm dia. (3") drainage holes by vertical or inclined upto 10° to vertical dewatering complete (30' C/C) 0 to 10 Met
15.	810	Metres	Flushing upto a maximum of 30 minutes the air under required pressure as directed in watering with all leads and lifts etc., co
16.	599	Metres	Drilling NX size (approximately ~~80~~ 80 mm ~~holes~~ or inclined as directed in rock or c (5% of curtain grout).
16(a)	599	Metres	Flushing upto a maximum of 30 minutes the with water & air under required pressure
17.	474	Insertions.	Providing and inserting packers in grout labour, materials etc., complete (alterna
18.	348	Hours	Flushing the above grout holes and test h with water and air under required pressur dewatering with all leads and lifts etc.,
19.	49	Metre Tonnes	Grouting with cement slurry in the drilled grouting with pressure as directed, inclu watering with all leads and lifts etc.,

	Rate	Per	Amount
drilled holes of 45 mm (1-7/8") by stage ng cost and conveyance of all materials, omplete (1/2 bag per foot)	392.00	Metric Tonne	3,84,944.00
(1-3/8") dia. vertical or inclined upto directed in stages including dewatering	37.00	Metre	1,43,560.00
bove consolidation grout holes of 35 mm ired pressure as directed including condu- all leads and lifts etc., complete.	17.50	Metre	67,900.00
n the above drilled holes of 35 mm(1-3/8") st and conveyance of all materials and in- etc., complete (1/2 bag per foot)	392.00	Metric Tonne	1,24,656.00
of approved quality 50 mm internal dia. M (25') above the foundation bed of spill- aterials providing screw caps and jointing ll loads and lifts etc., complete.	27.00	Metre	57,618.00
percussion drill from the drainage gallery, s directed in rock or concrete including es.	112.50	Metre	91,125.00
bove 80 mm(3") drainage holes with water and luding conducting water tests etc., and de- plete.	17.50	Metre	14,175.00
3") dia) Diamond core Test holes vertical ncrete including water tests, dewatering.	277.00	Metre	1,68,922.00
bove 80 mm (3" dia) diamond core test holes c.,	17.50	Metre	10,483.00
les at specified locations, including all holes).	6.00	Per in- sertion.	2,598.00
s of all diameters in excess of 30 minutes as directed including conducting water tests, mplete per stage of 20' 7.5 minutes.	75.50	Hours	26,274.00
holes of 80 mm (3") dia. test holes by stage ng cost and conveyance of all materials, de- plete (1/2 bag per foot)	392.00	Metric Tonne	19,208

/Contd...3.

S.No.	Quantity.	Unit.	Item
IV. CONCRETE:			
20.	75,196	Cum.	Providing and laying cement concrete of desig strength of 140 Kgs per Sq.Cm. at 28 days wi size upto 160 mm (6") and a cement content of of spillway, including cost and conveyance of curing and dewatering with all leads and lift the cost of alternatively. Precooling & Alter
20(a)	75,196	Cum	Providing and laying cement concrete of desig of 140 kg/Cum at 28 days with graded aggreg and a cement content of 191 kg/cum for the s including cost and conveyance of all materi vibrating, compacting, curing and dewatering complete but excluding the cost of precooling
21.	28,869	Cum	Providing and laying cement concrete of Desi of 210 kgs per sq.cm. at 28 days with graded mm (6") and with a cement content of 210 kgs below the crest concrete designation M-4 inc materials, form work, mixing, placing, vibra including all leads and lifts etc. complete Precooling; Alternatively
21(a)	28,869	Cum	Providing and laying cement concrete of desi strength of 210 kg/ cum at 28 days with grad 80 mm (3") and a cement content of 258 kgs/c spillway dam below the crest concrete desig of all materials form work, mixing, placing, dewatering, including all leads and lifts et pre-cooling.
22.	10,626	Cum	Providing and laying cement concrete of desi of 245 Kgs per Sq.cm. at 28 days with grade 40 mm (1½") and with a cement content of 37 spillway, fissures and fault zones in the f of all materials, form work, mixing, placing dewatering with all leads and lifts etc. co cooling.
23.	265	Metric Tonnes	Providing fabricating and placing in positi work including cutting, bending, binding, c dewatering, with all leads and lifts etc. c
24.	732	RM	Providing placing porous concrete 53 cm x 5 central 20.32 cm (8") dia. hole as per spec nce of all materials scaffolding, curing, d etc. complete (20' C/C).
25.	525	Metres	Providing 20 SWG Monel Water Sealing strips and placing, forming holes, providing steel specified and cost and conveyance of all ma with all leads and lifts etc. complete.
26.	1,291	Cum	Providing and laying cement concrete of Des 245 kgs per Sq.Cm at 28 days with graded ag (1½") and with a cement content of 375 Kgs/ including cost and conveyance of all materi compacting, curing, dewatering with leads a the cost of pre-cooling.
27.	1,748	Metres	Providing 20 SWG Monel Water sealing strips placing as specified and cost and conveyance dewatering with all leads and lifts etc. co

	Rate.	Per.	Amount.
tion M-1 with a crushing graded aggregates of maximum 55 Kgs/Cum. for the interior ll materials form work, placing etc. complete but excluding	82-00	Cum	61,66,072-00
tion M-1 (a) with a crushing strength of maximum size upto 80 mm(3") rior of the spillway section form work, mixing, placing, th all leads and lifts etc.	90-25	Cum	67,86,439-00
tion M-2 with a crushing strength gregate of maximum size upto 160 r cum. for the exterior of spillway ing cost and conveyance of all g, compacting, curing, dewatering excluding cost of alternatively	120-50	Cum	34,78,715/00
tion M2(a) with a crushing aggregate of maximum size upto c metre for the exterior of on M4 including cost and conveyance brating, compacting, curing complete but excluding cost of	130-45	Cum	37,65,961-00
tion M-3 with a crushing strength gregates of maximum size of upto s per cum. for the crest of the ation including cost and conveyance ibrating, compacting, curing, te but excluding the cost of pre-	158-60	Cum	16,85,284-00
ibbed steel reinforcement for R.C.C. of binding wire of approved quality ete.	1320-00	Metric Tonne	3,63,050-00
x 53cm (1-9"xL-'-9"xL-92) with a ations including cost and conveya- ering, with all leads and lifts	34-40	RM	25,131-00
directed, including fabricating es and filling with asphalt as als scaffolding, curing, dewatering	363-00	Metre	1,93,200-00
tion M-4 with a crushing strength of gates of maximum size of upto 40 mm surrounding the construction joints form work, mixing, placing, vibrating lifts etc. complete but excluding	255-05	Cum	3,23,270-00
directed, including fabricating and all materials, scaffolding, curing ete.	184-00	Metre	3,21,632-00

ABSTRACT ESTIMATE FOR CONSTRUCTION OF SPIL

Sub-Estimate IV C Works

Sl.No.	Quantity	Unit.	Items of work.
	A. SPILLWAY DAM.		
	I. Foundation Excavation.		
1.	Job		Clearing the site.
2.	1,4[illegible]3	Cu.m	Excavation for foundation of spillway portio ted rock, fissured rock, soft rock and remov 0.14 Cu.m (5 Cft) in volume but excluding ha strutting, dewatering and disposing of the e rected with all lifts and with a maximum le tion.
3.	67,393	Cu.m	Excavation for foundation of spillway porti including removal of hard rock boulders, si including shoring, strutting, dewatering an it neatly as directed with all lifts and wi edges of excavation.
4.	2,876	Cum	Excavation for foundation of Dam by drillin blasting including dewatering with all lead ing it neatly as directed with all lifts an of excavation.
	II FOUNDATION PREPARATION:		
5.	21,883	Sq.m	Preparing foundation bed for concrete by pr for foundation bed of spillway of Dam inclu for disposing the stuff as directed.
6.	204	Nos.	Providing and fixing 25 mm(1") dia. ribbed (5') in hard rock for foundation bed of spi cutting rods, grouting with cement mortar complete including cost of steel. (10' C/
	III FOUNDATION TREATMENT:		
7.			Drilling curtain grout holes of 45 mm dia. inclined upto 10° to the vertical in rock dewatering (5 ft. C/C).
	4,790	Metres	0 to 10 Metres.
	4,790	Metres	10 to 20 Metres
	2,395	Metres	20 to 25 Metres
8.	11,975	Metres	Flushing upto a maximum of 30 minutes the seven eighth inches) with water and air water tests etc., and dewatering with all

A.M

HWAY DAM FROM CH. 56 TO 79.90

	Rate	Per	Amount.
	L.S.	Job	15,000.00
n of Dam, in all kinds of soils disintegra- al of hard rock boulders upto and including rd rock requiring blasting including shoring excavated stuff or stacking it neatly as di- d of 120 M (400') beyond the edges of excava-	4.30	Cu.m	6,205/-
n of Dam, in hard rock requiring blasting e of more than 0.14 Cu.m (5 Cft) in volume disposing the excavated stuff or stacking h a maximum lead of 120 M (400') beyond the	16.75	Cu.m	11,28,833/-
wedging or barring without resorting to and lifts for disposing the stuff or stack- with a lead of 120 M (400') from the edge	30.30	Cu.m	87,143/-
pper line drilling benching and stepping ding dewatering with all leads and lifts	4.50	Sq.m	98,474/-
steel dowel bars 3 M(10') long driven 1.5 M lway including drilling holes in hard rock l, including dewatering with all leads etc., for 10% of area)	80.00	Each	16,320/-
(one and seven eighth inches) vertical or r concrete, as directed in stages including			
	80.50	Metre	3,85,595/-
	84.50	Metre	4,04,755/-
	89.00	Metre	2,17,155/-
urtain grout holes of 45 mm dia. (one and er required pressure as directed including eads and lifts etc., complete.	17.50	Metre	2,09,563/-

/Contd....2.....

1	2	3
8,612	Cum	5. Providing uncoursed rubble stone masonry in C.M. 1:4 f conveyance of all materials labour charges scaffolding and lifts etc. complete.
		C. Training Walls.
357	Cum.	1. Excavation for foundation of training walls in hard ro removal of hard rock boulders of size more than 0.14 C shoring, strutting, dewatering, and disposing the exc neatly as directed with all lifts and with a maximum the edges of excavation.
41	Cum.	2. Excavation for foundation of training walls in hard ro barring without resorting to blasting including dewat stuff or stacking neatly as directed with all lifts a (400') beyond the edges of excavation.
270	Sqm.	3. Preparing the foundation bed by proper line drilling walls including dewatering with all leads and lifts f directed.
78.5	Cum	4. Providing single line chisel dressed face stone maso face of the training walls including cost and conv charges, scaffolding, curing and dewatering, etc. co
714	Sqm.	5. Providing cement pointing in cement mortar 1 :2 p r walls including the cost and conveyance of all mate with all leads and lifts etc., complete.
1694	Cum.	6. Providing uncoursed rubble stone masonry in cement m walls including cost and conveyance of all the materi curing, dewatering and river flow diversion with all
		D. River Sluices:
18.58	Sqm.	1. Providing steel gates for riversluices.
3.72	Sqm	2. Providing one steel bulk head of 5' x 8'
901	Metre	3. Providing and laying cement concrete of the designat of 245 Kgs. per Sq.cm. at 28 days with graded aggreg upto (1½") and with a cement content of 375 Kgs per cost and conveyance of all materials, form work, mix curing, dewatering and with all leads, and lifts etc cost of pre-cooling.
106	Tonnes	4. Providing fabricating and placing in position mild including cutting, bending, binding, welding, cost dewatering, with all leads and lifts etc. complete.
230	Cum	5. Providing and laying cement concrete of Desi nation per Sq.cm. a t 28 days with a graded aggregate of a cement content of 310 Kgs. per Cum. for the plugg and conveyance of all materials, form work, mixing, dewatering, with all leads and lifts etc. complete
11515	Cum.	6. Pre-cooling the concrete including all plant machi materials and performing all operations required
6140		7. Extra Radial charges for conveyance of sand aggre beyond the radial limits shown in the respective

	4	5	6
or key walls including cost and curing dewatering with all leads x	71.50	Cum	6,15,758-00
ck requiring blasting including um.(5 Cft) in volume including vated stuff or stacking it lead of 120 M (400') beyond	17-20	Cum	16,460-00
ck by line drilling wedging or ering and disposing the excavated d with a maximum lead of 120 M	30-30	Cum	1,242-00
enching and stepping for training r disposing the stuff as	4.50	Sqm	1,215-00
y in C.M. 1:4 for the water side veyance of all materials labour lete.	100/-	Cum	7,850-00
rtion on the face of the training als, scaffolding curing, dewatering and	3.45	Sqm.	2,463-00
rtar 1:4 proportion for training als, labour charges, scaffolding, leads and lifts etc., complete.	71.50	Cum.	1,21,121-00
	5,383	Sqm	1,00,0[illegible]66-00
	5,383	Sqm	20,025/-
ion M4 with a crushing strength ites of maximum size of 40 mm um. for river sluices, including ing, placing, vibrating, compacting, , complete but excluding the	189-10	Metre	1,70,379-00
teel reinforcement for the RCC work f binding wire of approved quality,	1270	Tonnes	1,34,620-00
M3 with crusshing strength of 245 Kgs aximum size upto 80 mm (3") and a of three river sluices including cost lacing, vibrating, compacting, curing t excluding cost of pre-cooling.	127-20	Cum	29,256-00
ry and labour charges and all pre-cool the concrete mix.	7.00	Cum	80,605-00
e and rubble from querries arry.	0-27	Cum.	1,653-00

1	2	3
4,190	Metres.	26. Providing placing porous concrete 1.75' cubes with cation including cost and conveyance of all material all leads and lifts etc. complete 20' c/c/
1,544		27. Providing 20 SWG monel water sealing strips at cons fabricating and placing forming holes providing ste specificdtix and cost and conveyance of all material etc. complete.(65 ft. cc.)
5,001	Cum	28. Providing and laying cement concrete of designation Kgs. per Sqcm at 28 days with graded aggregates of cement content of 375 Kgs. per cum. around water seal cost and conveyance of all materials, form work, mix curing, dewatering with all leads and lifts etc., c
473	Running Metre	29. Providing 20 SWG Monel water sealing strips around t and conveyance of all materials scaffolding all pla lifts etc. complete.
15,557	Sqm	30. Providing cement plastering 10 mm (3/4") thick in c UCRS masonry adjacent contraction joints including scaffolding, curing, dewatering and all leads and l
643	Cum	31. Providing and laying cement concrete of designatio per sq.cm. at 28 days with graded aggregates with a cement content of 433 Kgs./ Cum wearing coats on of all materials form work, mixing, placing, vibrat and with all leads and lifts etc. complete.
7,800	Tonnes	32. Providing and handling puzzolana including its conv piles, placing in the mixer, and mixing it along wit placing the same in the structure.
		V. Drainage Gallery.
6,357	Cum	33. Providing and laying cement concrete of designation per Sq.cm. at 28 days with graded aggregates of max a cement content 375 Kgs. per cum. for surrounding cost and conveyance of all materials, form work, mix curing, dewatering with all leads and lifts etc. co
125.4	Metric Tonnes.	34. Providing fabricating and placing in position Ribbe around the gallery including cutting, bending, bind of approved quality, dewatering with all leads a
		VI- B. KEY WALLS.
1,889	Cum	1. Excavation for foundation of key walls in all kinds rock, soft rock and removal of hard rock boulders volume but excluding hard rock requiring blasting and disposing of the excavated stuff or stacking with a maximum lead of 90 M (300 ft.) beyond the
2,676	Cum.	2. Excavation for foundation of key walls in hard r of hard rock boulders of size more than 0.14 Cum. strutting, dewatering and disposing the excavated with all lifts and with a maximum lead of 90 M (
62	Cum	3. Excavation for foundation of key walls in hard r without resorting to blasting including dewateri or stacking neatly as directed with all lifts beyond the edges of excavation.
409	Sqm	4. Preparation of foundation bed by proper line dri walls, including dewatering, with all leads and directed.

	4	5	6
central 8" dia. hole as per specifi- s, scaffolding curing, dewatering with	34.40	Metres	1,4 4,136/-
ruction joints as directed including n pipes and filling the asphalt as s scaffolding, with leads and lifts	363/-	Metres	5,68,192-00
M4 with a crushing strength of 245 aximum size of 40 mm (1½") with a s at contraction joints including ing, placing, vibrating, compaction, mplete.	158-60	Cum	7,93,159-00
he drainage gallery including cost t and labour charges all leads and l	184/-	Rmt.	87,952-00
ment mortar 1:3 proporation on the face ost and conveyance of all materials fts etc.	3.45	Sqm.	53,672-00
M5 with a crushing strength of 245 Kgs. imum size upto 20 mm (3/4") and with the Dam including cost and conveyance ng, compacting, curing, dewatering	268-60	Cum	1,72,710-00
yance, from Departmental stock h other ingredients of mortar and	80.00	Tonnes	6,24,000-00
M4 with a crushing strength of 245 Kgs mum size of upto 40 mm (1½") and with he drainage gallery and including ing, placing, vibrating, compacting, plete but excluding cost of pre-cooling.	189-10	Cum	12,02,109-00
steel reinforcement for the R.C.C. ng, welding, cost of binding wire lifts etc. complete.	1370/-	Metre	1,71,798-00
of soils, disintegrated rock, fissured to and including 0.14 Cum(5 Cft) in luding shoring, strutting, dewatering neatly as directed with all lifts and es of excavation.	6-40	Cum	8,312-00
requiring blasting including removal 5 Cft). in volume including shoring, uff or stacking neatly as directed) beyond the edges of excavation.	17.20	Cum	46,027-00
by line drilling wedging or barring nd disposing the excavated stuff ith a maximum lead of 90 M (300 Ft.)	30.30	Cum	1,879-00
g, benching and stepping for key s for disposing the stuff as	4.50	Sqm.	1,841-00

1	2	3
4,410	Metres.	11. Flushing upto 30 minutes the above consolidation gr water and air under required pressure as directed i and dewatering with all leads and lifts etc.
361	Tonnes	12. Consolidation grouting with cement slurry in the ab dia under pressure as directed and including cost a including dewatering with all leads and lifts etc.
3,522	Metres	13. Providing and fixing mild steel pipes of approved q lengths varying 3 Metres to 8 Metres(10 ft. to 25 non-spillway including cost and conveyance of all m jointing etc. complete including dewatering with al (25' c/c)
1,230	Metres.	14. Drilling 80 mm (3") drainage holes by percussion dr cal or inclined upto 10^{0} to vertical as directed in dewatering etc., complete (30' c/c).
1,230	"	15. Flushing upto 30 minutes the drainage holes of 80 m under required pressure as directed including condu with all leads and lifts etc. complete.
906	Metres	16. Drilling NX size 80 mm (approximately 3") dia. dia inclined as directed in rock or concrete or masonry (5% of curtain grout hole bo foot-age).
906		16.(a) Flushing upto a maximum of 30 minutes the above holes with water and air under required pressure at
689 Insertions.		17. Providing and inserting packers in grout holes at s labours, materials etc. complete.
487	Hours.	18. Flushing curtain grout holes, consolidation grout h in excess of 30 minutes with water and air under re conducting water tests, dewatering with all leads a per stage of 20 feet).
74	Tonnes	19. Grouting with cement slurry in the above drilled h ing with pressure as directed, including cost and with all leads and lifts etc. complete(1/2 bag pe
		IV. Masonry.
16,201	Cum	20- Providing hammer dressed face stone masonry in C.M Dam including cost and conveyance of all materials, dewatering with all leads and lifts etc., complete.
30,390	Sqm	21. Cement pointing to the upstream face of non-spillwa an addition of water proofing materials including c scaffolding, curing and dewatering with all leads a
31,103	Cum	22. Providing uncoursed rubble masonry in C.M. 1:3 prop masonry for non-spillway Dam including cost and con scaffolding, curing, dewatering with all leads and
2,31,624	Cum	23. Providing uncoursed rubble stone masonry in C.M. 1 including cost and conveyance of all materials, lab dewatering with all leads and lifts etc. complete.
17,816-50	Cum	24. Providing face stone masonry in C.M. 1:4 proportio Dam including cost and conveyance of all materials, and dewatering with all leads and lifts etc. compl
33,400	Sqm.	25. Cement pointing to the downstream face of the non- including cost and conveyance of all materials, a all leads and lifts etc. complete.

	4	5	6
t holes of 35 mm (1-3/8") dia with luding conducting water tests etc.	17.50	Metres.	77,175
e drilled holes of 35 mm(1-3/8") conveyance of all materials mplete(½ bag per foot).	392/-	Tonnes	1,41,512/-
lity 50 mm (2") (Internal) dia. in) above the foundation bed of terials, providing screw caps and leads and lifts etc., complete	27-00	Metres	25,094/-
l from the drainage gallery, verti- rock or concrete or masonry including	112-50	Metres	1,38,375/-
(3") dia. holes with water and air ting water tests etc. and dewatering	17.50	Metres	21,525/-
nd core test holes vertical or including water tests, dewatering	277/-	Meteros	2,50,962/-
mm (3") dia diamond core test	17.50	"	15,855-00
ecified locations including all	6.00	Inser-tions.	4,134-00
les and test holes of all diametres uired pressure as directed including l lifts etc. complete(7.5 minutes	75.50	Hours	36,768-00
les of 80 mm (3") dia by stage grout- nveyance of all materials dewatering Rft).	392/-	Tonnes	29,008-00
1:3 for upstream face of non-spillway labour charges scaffolding, curing and	102/-	Cum	16,52,502-00
Dam with C.M. of 1:2 proportion with st and conveyance of all materials, l lifts etc. complete.	3.45	Sqm	1,04,846-00
adjacent to upstream face stone eyance of all materials, labour charges ifts etc. complete.	83.00	Cum	25,81,549-00
for nearting of non-spillway dam, r charges, scaffolding, curing,	~~7.50~~ 71.50	Cum	1,65,61,116-00
or downstream face of non-spillway labour charges scaffolding, curing, e.	100/-	Cum	17,81,650-00
llway Dam with C.M. 1:2 p roportion folding, curing and dewatering with	2.35	Sqm.	78,490-00

Abstract estimate for construction
48 to 56 and ch. 79.90 to 108.

Sub-Estimate III.

Quty.	Unit.	Item of work
		A: NON-SPILLWAY DAM I) Foundation excavation.
Job.		1) Clearing the site.
30,309	Cum	2) Excavation for foundation of non-spillway portion of disintegrated rock, fissured rock, soft rock and re and including 0.14 cum.(5 Cft) in volume but excludi blasting including shoring, strutting, dewatering a stuff or stacking it neatly as directed with all l (300 ft.) beyond the edges of excavation.
84,022	cum	3) Excavation for foundation of non-spillway portion o blasting including removal of hard rock boulders of (5Cft). in volume including shoring, strutting, dew excavated stuff or stacking neatly as directed with of 90 M (300 ft) beyond the edges of excavation.
3085	Cum	4) Excavation for foundation of non-spillway Dam, in h wedging or barring without resorting to blasting in posing the excavated stuff or stacking neatly as di with a maximum lead of 90 M (300 ft) beyond the edg
		II) Preparing foundation bed:
20,220	Sq.M.	5) Preparing foundation bed for concrete by proper lin stepping for foundation bed of non-spillway of Dam leads and lifts for disposing the stuff as directed
218	Nos.	6) Providing and fixing 25 mm (1") dia. ribbed steel driven 1.5 M (5 ft) in hard rock for the foundation including drilling 1-7/8" dia. holes in hard rock with cement mortar 1:1 including dewatering with a complete including cost of steel.
		III. Foundation treatment:
		7) Drilling curtain grout holes of 45 mm (1-7/8") di 10° to the vertical in rock or concrete or masonry including dewatering (5' C/C)
7,240	Metres.	0 to 10 Metres.
7,240	"	10 to 20 "
3,620	"	20 to 25 "
18,100	"	8. Flushing upto 30 minutes the curtain grout holes o water and air under required pressure as directed etc. and dewatering with all leads and lifts etc.
		0 to 10 Metres. 10 to 20 " 20 to 25 "
1,484	Tonnes	9. Curtain grouting with cement slurry in the drilled stage grouting with pressure as directed, includin materials, dewatering with all leads and lifts etc.
4,410	Metres.	10. Drilling consolidation grout holes of 35 mm (1-3/8 to the vertical in rock or concrete or masonry as dewatering (25' c/c).

Non-spillway Dam from ch.

C.Works.

	Rate.	Per.	Amount.
		Joh	15,000/-
Dam in all kinds of soils, oval of hard boulders upto ng hard rock requiring d disposing of the excavated fts and with a lead of 90 M.	4.40	Cum	1,33,360/-
dam in hard rock requiring size of more than 0.14 Cum. tering, and disposing the all leads and with a lead	17.20	Cum	14,45,178/-
rd rock by line drilling luding dewatering and dis- ected with all lifts and s of excavation.	30-30	Cum	93,476/-
drilling benching and ncluding dewatering with	4-50	Sqm	90,990/-
owel bars 3 M (10 ft) long ced of non-spillway dam cutting rods, grouting leads and lifts etc.,	80-00	Nos.	17,440/-
vertical or inclined upto as directed in stages			
	80.50	Metres.	5,82,820/-
	84-50	"	6,11,780/-
	89.00	"	3,22,180/-
45 mm (1-7/8") dia. holes with ncluding conducting water tests omplete.	17.50	Metres	3,16,750/-
noles of 45 mm (1-7/8") dia. by cost and conveyance of all complete(1/2 bag per foot depth)	392/-	Tonnes	5,81,723/-
) dia. vertical or inclined upto 10° irected in stages including	37-00	Metre	1,63,170/-

1	2	3
		Miscellaneous items.
Job		1. River Diversion.
Job.	..	2. Roadway on the Dam.
Job.	..	3. Providing and fixing kerb, parapet and lamp posts inc.
Job.	..	4. Conducting tests by the Department for purpose of qua
Job.	..	5. Provision for constructing and maintenance of quarry
Job.	..	5.(a) -do- -do-
Job.	..	6. Provision for air vents and air shafts.
		7. Cost in fluctuation of Oil, H.S.D. Grease etc
Job.	..	8. Providing and embedding instruments as directed for s
		9. Insurance premium charges on equipments
Job.	..	10. Electrification of drainage gallery, pump chamber and
	..	11. Contingencies at 3 % (*)
		12. Work-charged establishment 2 %
		13. Credit due to useful rubble obtained from the excava

	4	5	6
	..	Lumpsum	3,00,000-00
	..	"	78,680-00
uding ornamentals works.	..	"	75,000-00
ity control and selection of materials.		"	1,00,000-00
nd haul roads(main Roads)	..	"	3,00,000-00
(Access roads)	..	"	1,50,000-00
	..	"	25,000-00 1 00 000-00
udying structural behaviours of Dam.	..	"	2,00,000-00 1 00 000-00
adits etc.	..	"	10,000-00
		Total.	3,45,61,569-00
	(*)		10,36,847-00
			6,91,231-00
		Grand Total Rs.	3,62,89,647-00
on.			4,68,000-00
			3,58,21,647-00
			Say Rs 3,58·22 Lakhs

CHIEF ENGINEER, P. W. D.
IRRIGATION (NORTH), DHARWAR

6/1/69

Sl.No.	Quantity	Unit	Items	
			Credit due to useful rubble obtained from	
			Cost of spillway Dam with M_1, M_2 Concrete.	Rs.6
			Deduct cost M_1, M_2 Concrete.	12
			Net	5
			Add cost of M_{1a}, M_{2a} Concrete.	13
			Total	Rs.65
			Add 3% Contingencies.	1
			Add 2% Work Charged Establishment	1
			Grand Total	Rs. 68
			Credit due to useful rubble obtained from excavation.	4
				Rs. 63

	Rate	Per	Amount.
		B.F.	67[illegible], 23, 038.00
Excavation.			4, 77,000.00
			R 67[illegible], 46, 038.00
			or R 667 Lakhs.

[illegible], 02, 893.00	
[illegible], 06, 982.00	
[illegible], 75, 911.00	
[illegible], 36, 998.00	
[illegible], 32, 909.00	
[illegible], 65, 987.00	
[illegible], 00, 458.00	
[illegible], 03, 564.00	
[illegible], 77, 000.00	
[illegible], 54	OR SAY R 688.37 Lakhs.

CHIEF ENGINEER, P. W. D.
IRRIGATION (NORTH), DHARWAR

6/3/63